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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/646,011	08/22/2003	Matthew Weldon	004.0025D1	8969
29906	7590	01/21/2005	EXAMINER	
INGRASSIA FISHER & LORENZ, P.C. 7150 E. CAMELBACK, STE. 325 SCOTTSDALE, AZ 85251			ROSE, ROBERT A	
			ART UNIT	PAPER NUMBER
			3723	
DATE MAILED: 01/21/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/646,011	Applicant(s) WELDON ET AL.	
	Examiner Robert Rose	Art Unit 3723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 August 2003.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-37 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☒ Claim(s) 20-37 is/are allowed.
6) ☒ Claim(s) 14 and 16-19 is/are rejected.
7) ☒ Claim(s) 15 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Receipt is acknowledged of Applicant's Preliminary Amendment, filed August 22, 2003.
2. Claims 1-13 have been canceled.
3. Claims 14-37 are presented for examination.
4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 14, and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bibby Jr. et al(US 6106662) in view of Sandhu et al(US 5700180). Bibby, Jr. et al disclose a polishing apparatus comprising substantially all of the subject matter set forth in applicant's claims above. Plural fiber optic cables are embedded in the polishing surface to direct light to the surface and measure the reflected light. Note column 7, lines 21-37 wherein an embodiment employing plural sensors in the pad backer is disclosed. The entire surface of the wafer may be monitored if desired(column A spectrometer is used to analyze the reflected light signal, and a controller processes the signal to determine when an endpoint for polishing is achieved. While the device of Bibby, Jr. et al is configured for endpoint detection, it is known to use optical sensing means in the polishing pad to alter at least one parameter of polishing, as taught by Sandhu et al('180). Sandhu et al('180) teach optical measuring of a wafer surface to control various parameters of the polishing process. To utilize a controller in the device

Art Unit: 3723

of Bibby, Jr. et al, which uses the information obtained from the optical sensors, to alter at least one of the parameters of the planarization process would have been obvious in view of Sandhu et al('180). While Bibby, Jr. et al show a single annular band in figure 4, they disclose at column 7, lines 21-37 an embodiment employing plural sensors in the pad backer, and further disclose locating the sensors to monitor the entire surface of the wafer, if so desired. Such configuration would inherently require that the sensors be positioned radially with respect to the wafer. For overlap of the annular bands it is only necessary that the sensors be spaced from each other a distance less than the orbital radius of the pad. This is regarded as merely an obvious matter of design choice within the skill level of those of ordinary skill in the wafer polishing art.

6. Claims 15 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. Claims 20-37 are allowed.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kobayashi, et al is cited to show a method of fabricating a semiconductor integrated circuit wherein the surface of the wafer is scanned optically to determine the endpoint based upon the surface appearance as measured by the intensity of light reflected from the surface. Lustig et al(US 5433651) is cited of interest to show measurement of reflected light from the wafer surface during polishing to determine an endpoint. Hiyama et al, and Moriyama et al are cited to show other optical

Art Unit: 3723

measuring techniques for wafer endpoint utilizing reflected light from the wafer surface directed through the pad.

9. Any inquiry concerning this communication should be directed to Robert Rose at telephone number (571) 272-4494.

Robert Rose
Primary Examiner
Art Unit 3723

A handwritten signature in black ink, appearing to read 'Robert Rose', written over the printed name and title.

Rr

January 10, 2005.